

CLAIMS

What is claimed is:

1. A process for transitioning from a first polymerization reaction conducted in the presence of a first catalyst system to a second polymerization reaction conducted in the presence of a second catalyst system, the polymerization reaction being conducted in a polymerization zone of a gas phase fluidized bed reactor which contains a fluidized bed of polymer particles by the essentially continuous passage of monomer gases through the polymerization zone, comprising:

- a) discontinuing the introduction of the first catalyst system into the reactor wherein the first catalyst system comprises a chrome-based catalyst system;
- b) maintaining polymerization conditions in the reactor and permitting polymerization to continue for a period of time to allow the components of the first catalyst system present in the reactor to produce additional polymer particles;
- c) establishing optimal conditions within the reactor for the second catalyst system, wherein the second catalyst system comprises a mixed catalyst system comprising a metallocene component;
- f) introducing the second catalyst system into the reactor; and
- g) increasing reactor temperature to 105°C essentially simultaneously with the commencement of the second polymerization reaction.

2. The process of claim 1 wherein after discontinuing the introduction of the first catalyst system into the reactor, a deactivating agent for the first catalyst system is introduced into the reactor to inhibit the first polymerization reaction.

3. The process of claim 2 wherein the deactivating agent is selected from the group consisting of oxygen, alcohols, glycols, phenols, ethers, ketones, aldehydes, and carboxylic acids.

4. The process of claim 3 wherein the deactivating agent comprises oxygen.

5. The process of claim 2 wherein after the introduction of the deactivation agent and before the introduction of the second catalyst system into the reactor the partial pressure of ethylene in the reactor is reduced to about 60 to about 85 psig.

6. The process of claim 5 wherein after the reduction of the partial pressure of ethylene in the reactor, the reactor is purged with ethylene to achieve at least five gas volume change outs of the reactor.

7. The process of claim 1 wherein the monomer gas comprises ethylene.

8. The process of claim 7 wherein the monomer gas further comprises at least one higher alpha olefin monomers.

9. The process of claim 1 wherein the components of the first catalyst system present in the polymerization zone are permitted to produce additional polymer for a period of up to 10 hours after discontinuing the introduction of the first catalyst system into the polymerization zone.

10. The process of claim 9 wherein the components of the first catalyst system present in the polymerization zone are permitted to produce additional polymer for a period of 6 hours after discontinuing the introduction of the first catalyst system into the polymerization zone.

11. The process of claim 1 wherein the second catalyst system is not introduced into the reactor until after essentially all of the first catalyst system has been consumed in the course of the first polymerization reaction.

12. The process of claim 1 wherein the transition comprises less than or equal 5 volume turnovers of ethylene.

13. The process of claim 1 wherein the metallocene component comprises a cationic moiety.

14. A process for transitioning from a first polymerization reaction conducted in the presence of a first catalyst system to a second polymerization reaction conducted in the presence of a second catalyst system, the polymerization reaction being conducted in a polymerization zone of a gas phase fluidized bed reactor which contains a fluidized bed of polymer particles by the essentially continuous passage of monomer gases through the polymerization zone, comprising:

- a) discontinuing the introduction of the first catalyst system into the reactor wherein the first catalyst system comprises a metallocene catalyst system;
- b) maintaining polymerization conditions in the reactor and permitting polymerization to continue for a period of time to allow the components of the first catalyst system present in the reactor to produce additional polymer particles;
- c) establishing optimal conditions within the reactor for the second catalyst system, wherein the second catalyst system comprises a silyl-chromate catalyst system;
- d) introducing the second catalyst system into the reactor; and
- e) increasing reactor temperature to 95°C.

15. The process of claim 14 wherein the monomer gas comprises ethylene.

16. The process of claim 15 wherein the monomer gas further comprises at least one higher alpha olefin monomers.

17. The process of claim 14 wherein the components of the first catalyst system present in the polymerization zone are permitted to produce additional polymer for a period of up to 8 hours after discontinuing the introduction of the first catalyst system into the polymerization zone.

18. The process of claim 17 wherein the components of the first catalyst system present in the polymerization zone are permitted to produce additional polymer for a

period of 2.5 hours after discontinuing the introduction of the first catalyst system into the polymerization zone.

19. The process of claim 14 wherein the second catalyst system is not introduced into the reactor until after essentially all of the first catalyst system has been consumed in the course of the first polymerization reaction.